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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,045	11/26/2003	Cyprian E. Uzoh	ASMNUT.028CP*	7817

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EXAMINER

SMITH, NICHOLAS A

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,045

Applicant(s)

UZOH ET AL.

Examiner

Nicholas A. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/22/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to a method of electrochemical process solution handling, classified in class 205, subclass 99.
- II. Claim 16-26, drawn to an apparatus housing electrolyte for electroplating, classified in class 205, subclass 261.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process, such as electroplating a workpiece surface located substantially lower than adjacent to the top opening, for instance, the lower chamber.

During a telephone conversation with Tina Chen on 6/7/2006 a provisional election was made preserving the right of traverse to prosecute the invention of Group II, claims 16-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Claims

Claims 16-26 remain for examination. Claims 1-15 have been withdrawn from consideration.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 16-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 8-9 of U.S. Patent No. 6,695,962 (Uzoh et al.) in view of Mayer et al. (US Patent 6,572,920).

In regards to claim 16, Uzoh et al. (claim 1) teaches a system comprising a solution housing with a filter element partitioning into an upper and a lower chamber.

However, Uzoh et al. does not specifically teach an upper inlet port coupled to the solution housing configured to deliver process solution to the upper chamber.

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Mayer et al. teaches an upper inlet port (Fig. 4B, **460**) coupled to the solution housing configured to deliver process solution to an upper chamber (Fig. 4B, **464**). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s inlet port to Uzoh et al.'s system in order to fill the upper chamber with catholyte (Mayer et al., col. 13, lines 31-33).

In regards to claims 17 and 18, Uzoh et al. does not teach a discharge port or an inlet port coupled to the lower chamber.

Mayer et al. teaches a discharge port and an inlet port for the lower chamber (Fig. 4B, **484** and **488**). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s inlet port and discharge port to Uzoh et al.'s system in order to fill and remove anolyte from the lower chamber (Mayer et al., col. 14, lines 4-9).

In regards to claims 19 and 20, Uzoh et al. teach (claim 8) two filter elements but does not teach specifically two filter elements with two sections having different pore sizes and pores with graded sizes.

Mayer et al. teaches two filter elements with two sections having different pore sizes and pores with graded sizes (col. 17, lines 6-42). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s two sections of pore size and pores with graded sizes to Uzoh et al.'s two filter element system in order to provide the following advantages: large resistance to flow, allows good ionic conductivity, mechanical strength, extra resistance to flow, a stagnant region where primarily only diffusion of non-ionic species can occur which leads to substantially prevent all anode

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particles from passing from the lower chamber to the upper chamber (Mayer et al., col. 17, lines 21-42).

In regards to claim 21, Uzoh et al. (claim 8) teaches an another filter element defining an intermediate chamber.

In regards to claim 22, Mayer et al. teaches a second filter element with a smaller pore size than the first filter element (col. 13, lines 49-56 and col. 17, lines 6-42). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s second filter element with a smaller pore size than the first element to Uzoh et al.'s system in order to reduce both the risks of flow short circuiting, concomitant additive exposure to the anode (Mayer et al., col. 17, lines 64-67).

In regards to claim 23, Mayer et al. teaches an upper inlet port (Fig. 4B, **418**) configured to deliver the process solution to the intermediate chamber (Fig. 4B, **464**). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s upper inlet port to Uzoh et al.'s system in order to deliver small quantities of anolyte to enter the intermediate chamber (Mayer et al., col. 14, lines 48-50).

In regards to claim 24, Mayer et al. teaches an intermediate inlet port (Fig. 4B, **460**) is configured to deliver the process solution to the intermediate chamber (Fig. 4B, **464**). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s intermediate inlet port to Uzoh et al.'s system in order to fill the intermediate chamber with catholyte (Mayer et al., col. 13, lines 31-33).

In regards to claim 25, Mayer et al. teaches an intermediate inlet port (Fig. 4B, **460**) is configured to deliver the process solution to fill the upper chamber (Fig. 4B,

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volume between **466** and **470**). It would have been obvious to one of ordinary skill in the art to apply Mayer et al.'s intermediate inlet port to Uzoh et al.'s system in order to impart flow upward in an uniform manner which promotes even plating of the wafer surface (Mayer et al., col. 13, lines 38-43).

In regards to claim 26, Uzoh et al. (claim 9) teaches a filter element configured to guide bubbles to an outlet port.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 16-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Mayer et al. (US Patent 6,572,920).

In regards to claim 16, Mayer et al. anticipates the claimed system with a filter element (Fig. 4B, **468**) partitioning into an upper chamber (Fig. 4B, **464**), a lower

chamber (Fig. 4B, **462**) with an immersed anode (col. 14, lines 44-57) and an inlet port for the upper chamber (Fig. 4B, **460**).

In regards to claim 17-18, Mayer et al. anticipates the claimed discharge port and the claimed inlet port for the lower chamber (Fig. 4B, **484** and **488**).

In regards to claim 19 and 20, Mayer et al. anticipates the claimed filter element with two sections having different pore sizes and pores with graded sizes (col. 17, lines 6-42).

In regards to claim 21, Mayer et al. anticipates the claimed second filter element (Fig. 4B, **466**) to define an intermediate chamber (Fig. 4B, **464**) between upper chamber (Fig. 4B, volume between **466** and **470**) and a lower chamber (Fig. 4B, **462**).

In regards to claim 22, Mayer et al. anticipates the claimed second filter element with a smaller pore size than the first filter element (col. 13, lines 49-56 and col. 17, lines 6-42).

In regards to claim 23, Mayer et al.'s upper inlet port (Fig. 4B, **418**) is configured to deliver the process solution to the intermediate chamber (Fig. 4B, **464**) as claimed.

In regards to claim 24, Mayer et al.'s intermediate inlet port (Fig. 4B, **460**) is configured to deliver the process solution to the intermediate chamber (Fig. 4B, **464**) as claimed.

In regards to claim 25, Mayer et al.'s intermediate inlet port (Fig. 4B, **460**) is configured to deliver the process solution to fill the upper chamber (Fig. 4B, volume between **466** and **470**) as claimed.

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In regards to claim 26, Mayer et al.'s filter element (Fig. 4B, **468**) is configured to guide bubbles to an outlet port (Fig. 4B, **418**) as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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